SEQUENCE LISTING

<110> BANYU PHARMACEUTICAL CO., LTD.

<120> NOVEL GUANOSINE TRIPHOSPHATE (GTP)
BINDING PROTEIN—COUPLED RECEPTOR PROTEIN, BG3

<130> B1-101PCT

<140>

<141>

<150> JP 1999-82641

<151> 1999-03-25

<160> 6

<170> PatentIn Ver. 2.0

⟨210⟩ 1

⟨211⟩ 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Artificially

synthesized primer sequence

<400> 1

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21

⟨210⟩ 2

<211> 3117

<212> DNA

<213> Homo sapiens

<400> 2

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gcgagtggcg ccatctgggc ctttgtagcc cctgccctgt ttgtcatcgt ggtcaacatt 480 ggcatcctca tcgctgtgac cagagtcatc tcacagatca gcgccgacaa ctacaagatc 540 catggagacc ccagtgcctt caagttgacg gccaaggcag tggccgtgct gctgcccatc 600 ctgggtacct cgtgggtctt tggcgtgctt gctgtcaacg gttgtgctgt ggttttccag 660 tacatgtttg ccacgctcaa ctccctgcag ggactgttca tattcctctt tcattgtctc 720 ctgaattcag aggtgagagc cgccttcaag cacaaaacca aggtctggtc gctcacgagc 780 ageteegeee geaceteeaa egegaageee tteeactegg aceteatgaa tgggaceegg 840 ccaggcatgg cetccaccaa getcageeet tgggacaaga geageeacte tgeccacege 900 gtcgacctgt cagccgtgtg agccgggagg ctgccaacca ggccaggctg cgctcagaac 960 acacceccc aaacagaatg aaatgeecca eetttgeeca tggaecetet eettgetget 1020 gtctggacat gggtgttgtg gccccgagac agctgtcctc ccctgtgact ctggctgtcg 1080 gagcacactg ctcagcccag cagcctgatg cccaggccag cgtgggccct cctgccttgc 1140 atccacccgt gggctgagtg acttcctcgg gggattccca ggacacagtg gcctgactgt 1200 gatggtgccc ttgagcctcc cttcatcact cagcatcaga cccagcgagg ccaggacact 1260 eggggeeggt eeegcageac eaggaggga tgtteageet etgtgeettg gtggggettg 1320 gggactcagg gccaaagagg tggttcaggt ccccacgcac cctcagtcag gcgcaggcag 1380 ctgggggtgt gtggggaaga gcatgcggag tccccagtgt ctgaatccac tgagtggtga 1440 gttccccaca gccggcgcta gctggtgtgt gtctctgtag gtggtgccgg cgtgggccaa 1500 cctgtgctgt gtcatcagtt gggggcccct gcccaagccg agctcgagcc gtgggcggga 1560 gtcgttgact ctccaggtga gggcgacccc tctgccctgt ccttgggggg gtcccctctg 1620 ctcacgtgaa gagccgctct gggccttgag gctgcctgat ggtgcctgtg cttgggggag 1680 cttctcggcc atccgctgtg agttttgcct ctttggaccc caattcggcc ttaagatgcc 1740 etectecete gtgtgccage etecttggtt gttettggge cacaggaget ggeegtgtee 1800 ccgcagtgcc tggtgtccag gtggaaagtg gagggcattt tccagggcac tgctttcccc 1860 agaggettee teatggetea caggeactet acgaagttte taatgggeag accaegegge 1920 aggtagcaca gtgcgctccg tctggtcacc atgagaccga cctgcgctga gtccccactg 1980 acctggagag ggagggctgg tgacagccgt gtcttctgtg ttgagggaaa tttatggact 2040 cagattcagc cccagaggag atgggataat tgttatggac ccatgtgtgg gcatgatcct 2100 gtggaacaca ggtttgggat catagatgtg aattaagaca ccaccgagat acgggctgtg 2160 aggttcatac tgtgctgata gcactcgtgg tgtctgtgaa atgtgggtaa gacattcaaa 2220 cctggttttg atactggaaa ctcttccttt aaaactgtga ccatgatttc attcagcccc 2280 tecacaecee tatgtetgee ttgttteaga gtgagtttte tatggageet gtggeeettt 2340 tgcagcccac ctggtggctt cttaatgtaa ctcttcccct ggtcgcctgg agtggaccac 2400 tcatctgcag gcctctcctg catggggagg gtaggcaggg agcagcatgt ctgcaggggt 2460 gaacetttge tettetgtea ggegaggeec aggetgeace agceacetge cacatggtga 2520 cagtgccacg ggccctgcgt atggcccctg caaccgtgct ctggcgggca cacctggctg 2580 ctgcaggcca aggccgctgt tcagtgaaga gtcccatgtt tagtatggac taaagtccca 2640 tgtttagcca ctgccccagg ctcccgtgac cccagaaacc aggtcacatg gaccacagtg 2700 ccagatecte ateaegeegg tgageaecta gaagtgagaa caetgtatte etacaatgta 2760 ⟨210⟩ 3

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Artificially
synthesized primer sequence

<400> 3

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⟨210⟩ 4

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Artificially synthesized primer sequence

⟨400⟩ 4

ctgctcgtga gcgaccagac c

21

<210> 5

<211> 5340

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (517)..(3138)

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gtccccgggc	gcaggtcgcg	gtcacagtgg	tgacctggga	ttgctttccc	aggactgcga	240
gtcgggtttg	ggtttctcct	ccctgcattc	cacagetget	ctggtcatcg	caacgtgttt	300
attgatcact	gaagaatctc	aagttttgag	acgaggaaga	aacacccatt	aggtctccaa	360
gacagctgtg	tttcacaaac	tttagggaga	cagaaatttt	ctcccctgga	acctgtgaaa	420
atgtcccttt	tccaaggaag	tgaaggttaa	gaggtcccgt	tctcacagac	cctcagtaat	480
ttcacttggc	tccgagcttt	gacctccgag	agagcc atg	gaa aag ct	g ctg cgg	534
			Met	Glu Lys Le	u Leu Arg	
			1		5	

ctg tgc tgc tgg tac tcc tgg ctg ctg cta ttt tat tac aac ttt cag 582

Leu Cys Cys Trp Tyr Ser Trp Leu Leu Leu Phe Tyr Tyr Asn Phe Gln

10 15 20

gtg cgt ggc gtc tac tcc aga tcg cag gac cat cca gga ttt cag gtg 630 Val Arg Gly Val Tyr Ser Arg Ser Gln Asp His Pro Gly Phe Gln Val 25 30 35

ttg gcg tct gct tcc cat tac tgg cca ctg gag aat gtg gat ggg atc 678

Leu	Ala	Ser	Ala	Ser	His	Tyr	Trp	Pro	Leu	Glu	Asn	Val	Asp	Gly	Ile
	40					45					50				

cat	gaa	ctt	cag	gat	aca	act	gga	gat	att	gtg	gaa	ggg	aag	gtc	aac	726
His	Glu	Leu	Gln	Asp	Thr	Thr	G1y	Asp	Ile	Val	Glu	Gly	Lys	Val	Asn	
55					60					65					70	

				75					80					85		
Lys	Gly	Ile	Tyr	Leu	Lys	Glu	Glu	Lys	Gly	Val	Thr	Leu	Leu	Tyr	Tyr	
aaa	ggc	att	tac	ctg	aaa	gag	gaa	aag	gga	gtc	acg	ctt	ctc	tat	tac	774

ggc	agg	tac	aac	agc	tcc	tgc	atc	agc	aag	cca	gag	cag	tgt	ggc	cct	822
Gly	Arg	Tyr	Asn	Ser	Ser	Cys	Ile	Ser	Lys	Pro	Glu	Gln	Cys	G1y	Pro	
			90					95					100			

gaa	ggg	gtc	acg	ttt	tct	ttt	ttc	tgg	aag	aca	caa	gga	gaa	cag	tct	870
Glu	Gly	Val	Thr	Phe	Ser	Phe	Phe	Trp	Lys	Thr	Gln	Gly	Glu	Gln	Ser	
		105					110					115				

aga cca atc cct tct gcg tat ggg gga cag gtc atc tcc aat ggg ttc 918

Arg Pro Ile Pro Ser Ala Tyr Gly Gly Gln Val Ile Ser Asn Gly Phe

120 125 130

aaa gtc tgc tcc agc ggt ggc aga ggc tct gtg gag ctg tac acg cgg 966 Lys Val Cys Ser Ser Gly Gly Arg Gly Ser Val Glu Leu Tyr Thr Arg 135 140 145 150

1	gac	aat	tcc	atg	aca	tgg	gag	gcc	tcc	ttc	agc	ccc	cca	ggc	ccc	tat	1014
ı	Asp	Asn	Ser	Met	Thr	Trp	Glu	Ala	Ser	Phe	Ser	Pro	Pro	Gly	Pro	Tyr	
					155					160					165		
	tgg	act	cat	gtc	cta	ttt	aca	tgg	aaa	tcc	aag	gag	ggc	ctg	aaa	gtc	1062
	Trp	Thr	His	Val	Leu	Phe	Thr	Trp	Lys	Ser	Lys	Glu	Gly	Leu	Lys	Val	
				170					175					180			
	tac	gtc	aac	ggg	acc	ctg	agc	acc	tct	gat	ccg	agt	gga	aaa	gtg	tct	1110
	Tyr	Val	Asn	Gly	Thr	Leu	Ser	Thr	Ser	Asp	Pro	Ser	Gly	Lys	Val	Ser	
			185					190					195				
	cgt	gac	tat	gga	gag	tcc	aac	gtc	aac	ctc	gtg	ata	ggg	tct	gag	cag	1158
	Arg	Asp	Tyr	Gly	Glu	Ser	Asn	Val	Asn	Leu	Val	Ile	Gly	Ser	Glu	Gln	
		200					205					210					
	gac	cag	gcc	aag	tgt	tat	gag	aac	ggt	gct	ttc	gat	gag	ttc	atc	atc	1206
	Asp	G1n	Ala	Lys	Cys	Tyr	Glu	Asn	Gly	Ala	. Phe	Asp	Glu	Phe	e Ile	Ile	
	215					220)				225)				230	
	tgg	gag	g cgg	g gct	ctg	gact	ccg	g gat	gag	ato	g gcc	ate	tac	tto	c act	gct	1254
	Trp	Glı	ı Arg	g Ala	a Leu	ı Thr	Pro	Asp	Glu	ı Ile	e Ala	a Met	Туг	r Phe	e Thr	· Ala	
					235	5				240)				245	5	

gcc att gga aag cat gct tta ttg tct tca acg ctg cca agc ctc ttc 1302

Ala Ile Gly Lys	His Ala Leu	Leu Ser Ser 255		er Leu Phe 60
atg aca tcc aca	gca agc ccc	gtg atg ccc	aca gat gcc t	ac cat ccc 1350
Met Thr Ser Thr	Ala Ser Pro	Val Met Pro	Thr Asp Ala T	yr His Pro
265		270	275	
atc ata acc aac	ctg aca gaa	gag aga aaa	acc ttc caa a	gt ccc gga 1398
Ile Ile Thr Asn	Leu Thr Glu	Glu Arg Lys	Thr Phe Gln S	er Pro Gly
280	285		290	
gtg ata ctg agt	tac ctc caa	aat gta tcc	ctc agc tta c	cc agt aag 1446
Val Ile Leu Ser	Tyr Leu Gln	Asn Val Ser	Leu Ser Leu P	ro Ser Lys
295	300		305	310
tcc ctc tcg gag	cag aca gcc	ttg aat ctc	acc aag acc t	tc tta aaa 1494
Ser Leu Ser Glu	Gln Thr Ala	Leu Asn Leu	Thr Lys Thr P	he Leu Lys
	315	320		325
gcc gtg gga gag	atc ctt cta	ctg cct ggt	tgg att gct c	tg tca gag 1542
Ala Val Gly Glu	Ile Leu Leu	Leu Pro Gly	Trp Ile Ala L	eu Ser Glu
330		335	3	40

345

355

1590

gac agc gcc gtg gta ctg agt ctc atc gac act att gac acc gtc atg

Asp Ser Ala Val Val Leu Ser Leu Ile Asp Thr Ile Asp Thr Val Met

ggc	cat	gta	tcc	tcc	aac	ctg	cac	ggc	agc	acg	ccc	cag	gtc	acc	gtg	1638
Gly	His	Val	Ser	Ser	Asn	Leu	His	Gly	Ser	Thr	Pro	Gln	Val	Thr	Val	
	360					365					370					
gag	ggc	tcc	tct	gcc	atg	gca	gag	ttt	tcc	gtg	gcc	aaa	atc	ctg	ccc	1686
Glu	Gly	Ser	Ser	Ala	Met	Ala	Glu	Phe	Ser	Val	Ala	Lys	Ile	Leu	Pro	
375					380					385					390	
aag	acc	gtg	aat	tcc	tcc	cat	tac	cgc	ttc	ccg	gcc	cac	ggg	cag	agc	1734
Lys	Thr	Val	Asn	Ser	Ser	His	Tyr	Arg	Phe	Pro	Ala	His	Gly	Gln	Ser	
				395					400					405		
ttc	atc	cag	atc	ccc	cac	gag	gcc	ttc	cac	agg	cac	gcc	tgg	agc	acc	1782
Phe	Ile	Gln	Ile	Pro	His	Glu	Ala	Phe	His	Arg	His	Ala	Trp	Ser	Thr	
			410					415					420			
gto	gtg	ggt	ctg	ctg	tac	cac	ago	atg	cac	tac	tac	ctg	aac	aac	atc	1830
															Ile	
		425					430					435				
tgg	g ccc	c gcc	cac	aco	aag	g ato	gcg	g gag	gcc	ate	cat	cac	cag	gac	tgc	1878
															Cys	

ctg ctg ttc gcc acc agc cac ctg att tcc ctg gag gtg tcc cca cca 1926

445

440

Leu	Le	u	Phe	Ala	Thr	Ser	His	Leu	Ile	Ser	Leu	Glu	Val	Ser	Pro	Pro	
458	;					460					465					470	
cco	ac	С	ctg	tct	cag	aac	ctg	tcg	ggc	tct	cca	ctc	att	acg	gtc	cac	1974
Pro	Th	r	Leu	Ser	Gln	Asn	Leu	Ser	Gly	Ser	Pro	Leu	Ile	Thr	Val	His	
					475					480					485		
ct	aa	g	cac	aga	ttg	aca	cgt	aag	cag	cac	agt	gag	gcc	acc	aac	agc	2022
Le	ı Ly	s	His	Arg	Leu	Thr	Arg	Lys	Gln	His	Ser	Glu	Ala	Thr	Asn	Ser	
				490					495					500			
ag	c aa	ıc	cga	gtc	ttc	gtg	tac	tgc	gcc	ttc	ctg	gac	ttc	agc	tcc	gga	2070
Se	r As	sn	Arg	Val	Phe	Val	Tyr	Cys	Ala	Phe	Leu	Asp	Phe	Ser	Ser	Gly	
			505					510					515				
ga	a gg	gg	gtc	tgg	tcg	aac	cac	ggc	tgt	gcg	ctc	acg	aga	gga	aac	ctc	2118
G1	u G	lу	Val	Trp	Ser	Asn	His	Gly	Cys	Ala	Leu	Thr	Arg	G1y	Asn	Leu	
	52	20					525					530					
																ctc	2166
Th	r T	yr	Ser	Val	Cys	Arg	Cys	Thr	His	Leu			Phe	Ala	Ile		
53	5					540	1				545					550	
																	001
at	g c	ag	gtg	gtc	ccg	ctg	gag	ctt	gca	cgc	gga	cac	cag	gtg	gcg	ctg	2214

Met Gln Val Val Pro Leu Glu Leu Ala Arg Gly His Gln Val Ala Leu

560

555

tcg	tct	atc	agc	tat	gtg	ggc	tgc	tcc	ctc	tcc	gtg	ctc	tgc	ctg	gtg	2262
									Leu							
			570	•		·	·	575					580			
			0.0													
		,	4		44.		+_	-+-	+	+	~+ ~	6.00	000	ato	caa	2310
									tcc							2010
Ala	Thr	Leu	Val	Thr	Phe	Ala	Val	Leu	Ser	Ser	Val	Ser	Thr	lle	Arg	
		585					590					595				
aac	cag	cgc	tac	cac	atc	cac	gcc	aac	ctg	tcc	ttc	gcc	gtg	ctg	gtg	2358
Asn	Gln	Arg	Tyr	His	Ile	His	Ala	Asn	Leu	Ser	Phe	Ala	Val	Leu	Val	
	600					605					610					
gcc	cag	gtc	ctg	ctg	ctc	att	agt	ttc	cgc	ctc	gag	ccg	ggc	acg	acc	2406
-	_								Arg							
	OIII	V 4.1	Lcu	Бси	620	110	501	1 110	8	625	014		3		630	
615					020					020					000	
																0.45
									cac							2454
Pro	Cys	Gln	Val	Met	Ala	Val	Leu	Leu	His	Tyr	Phe	Phe	Leu	Ser	Ala	
				6 35					640					645		
ttc	gca	tgg	atg	ctg	gtg	gag	ggg	ctg	cac	ctc	tac	agc	atg	gtg	atc	2502
Phe	Ala	Trp	Met	Leu	Val	Glu	Gly	Leu	His	Leu	Tyr	Ser	Met	Val	Ile	
			650					655					660			

aag gtc ttt ggg tcg gag gac agc aag cac cgt tac tac tat ggg atg 2550

Lys Val	Phe Gl	7 Ser	Glu	Asp	Ser	Lys	His	Arg	Tyr	Tyr	Tyr	Gly	Met
	665				670					675			

gga	tgg	ggt	ttt	cct	ctt	ctg	atc	tgc	atc	att	tca	ctg	tca	ttt	gcc	2598
Gly	Trp	Gly	Phe	Pro	Leu	Leu	Ile	Cys	Ile	Ile	Ser	Leu	Ser	Phe	Ala	
	680					685					690					

atg gac ag	tac gga	aca agc	aac aat	tgc tgg	ctg tcg	ttg gcg	agt 2646
Met Asp Se	Tyr Gly	Thr Ser	Asn Asn	Cys Trp	Leu Ser	Leu Ala	Ser
695		700		705			710

ggc	gcc	atc	tgg	gcc	ttt	gta	gcc	cct	gcc	ctg	ttt	gtc	atc	gtg	gtc	2694
Gly	Ala	Ile	Trp	Ala	Phe	Val	Ala	Pro	Ala	Leu	Phe	Val	Ile	Val	Val	
				715					720					725		

aac	att	ggc	atc	ctc	atc	gct	gtg	acc	aga	gtc	atc	tca	cag	atc	agc	2742
Asn	Ile	Gly	Ile	Leu	Ile	Ala	Val	Thr	Arg	Val	Ile	Ser	Gln	Ile	Ser	
			730					735					740			

gcc	gac	aac	tac	aag	atc	cat	gga	gac	ccc	agt	gcc	ttc	aag	ttg	acg	279	0
Ala	Asp	Asn	Tyr	Lys	Ile	His	Gly	Asp	Pro	Ser	Ala	Phe	Lys	Leu	Thr		
		745					750					755					

gcc aag gca gtg gcc gtg ctg ctg ccc atc ctg ggt acc tcg tgg gtc 2838

Ala Lys Ala Val Ala Val Leu Leu Pro Ile Leu Gly Thr Ser Trp Val

760 765 770

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Phe	Gly	Val	Leu	Ala	Val	Asn	Gly	Cys	Ala	Val	Val	Phe	Gln	Tyr	Met	
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Phe	Ala	Thr	Leu	Asn	Ser	Leu	Gln	G1y	Leu	Phe	Ile	Phe	Leu	Phe	His	
				795					800					805		
tgt	ctc	ctg	aat	tca	gag	gtg	aga	gcc	gcc	ttc	aag	cac	aaa	acc	aag	2982
Cys	Leu	Leu	Asn	Ser	Glu	Val	Arg	Ala	Ala	Phe	Lys	His	Lys	Thr	Lys	
			810					815					820			
gtc	tgg	tcg	ctc	acg	agc	agc	tcc	gcc	cgc	acc	tcc	aac	gcg	aag	ccc	3030
Val	Trp	Ser	Leu	Thr	Ser	Ser	Ser	Ala	Arg	Thr	Ser	Asn	Ala	Lys	Pro	
		825					830					835				
ttc	cac	tcg	gac	ctc	atg	aat	ggg	acc	cgg	cca	ggc	atg	gcc	tcc	acc	3078
Phe	His	Ser	Asp	Leu	Met	Asn	Gly	Thr	Arg	Pro	Gly	Met	Ala	Ser	Thr	
	840					845					850					
aag	ctc	agc	cct	tgg	gac	aag	agc	agc	cac	tct	gcc	cac	cgc	gtc	gac	3126
Lys	Leu	Ser	Pro	Trp	Asp	Lys	Ser	Ser	His	Ser	Ala	His	Arg	Val	Asp	
855					860					865					870	

Leu Ser Ala Val

acacacccc cccaaacaga atgaaatgcc ccacctttgc ccatggaccc tctccttgct 3238 gctgtctgga catgggtgtt gtggccccga gacagctgtc ctcccctgtg actctggctg 3298 teggageaca etgeteagee eageageetg atgeceagge eagegtggge ceteetgeet 3358 tgcatccacc cgtgggctga gtgacttcct cgggggattc ccaggacaca gtggcctgac 3418 tgtgatggtg cccttgagcc tcccttcatc actcagcatc agacccagcg aggccaggac 3478 actoggggcc ggtcccgcag caccaggagg ggatgttcag cctctgtgcc ttggtggggc 3538 ttggggactc agggccaaag aggtggttca ggtccccacg caccctcagt caggcgcagg 3598 cagctggggg tgtgtgggga agagcatgcg gagtccccag tgtctgaatc cactgagtgg 3658 tgagttcccc acagccggcg ctagccgtgg tgtgtgtctc tgtaggtggt gccggcgtgg 3718 gccaacctgt gctgtgtcat cagttggggg cccctgccca agccgagctc gagccgtggg 3778 egggagtegt tgaeteteea ggtgagggeg acceetetge eetgteettg ggggggteee 3838 ctctgctcac gtgaagagec gctctgggec ttgaggctgc ctgatggtgc ctgtgcttgg 3898

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and the common fields of the common state of the common of the field of the common of

arc Time (micros (RILLE)

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⟨400⟩ 6

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His Pro Gly Phe Gln Val Leu Ala Ser Ala Ser His Tyr Trp Pro Leu
35 40 45

Glu Asn Val Asp Gly Ile His Glu Leu Gln Asp Thr Thr Gly Asp Ile
50 55 60

Val Glu Gly Lys Val Asn Lys Gly Ile Tyr Leu Lys Glu Glu Lys Gly
65 70 75 80

Val Thr Leu Leu Tyr Tyr Gly Arg Tyr Asn Ser Ser Cys Ile Ser Lys
85 90 95

Pro Glu Gln Cys Gly Pro Glu Gly Val Thr Phe Ser Phe Phe Trp Lys

100 105 110

Thr Gln Gly Glu Gln Ser Arg Pro Ile Pro Ser Ala Tyr Gly Gly Gln
115 120 125

Val Ile Ser Asn Gly Phe Lys Val Cys Ser Ser Gly Gly Arg Gly Ser

130 135 140

Val Glu Leu Tyr Thr Arg Asp Asn Ser Met Thr Trp Glu Ala Ser Phe
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Ser Pro Pro Gly Pro Tyr Trp Thr His Val Leu Phe Thr Trp Lys Ser 165 170 175

Lys Glu Gly Leu Lys Val Tyr Val Asn Gly Thr Leu Ser Thr Ser Asp 180 185 190

Pro Ser Gly Lys Val Ser Arg Asp Tyr Gly Glu Ser Asn Val Asn Leu
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Val Ile Gly Ser Glu Gln Asp Gln Ala Lys Cys Tyr Glu Asn Gly Ala 210 215 220

Phe Asp Glu Phe Ile Ile Trp Glu Arg Ala Leu Thr Pro Asp Glu Ile 225 230 235 240

Ala Met Tyr Phe Thr Ala Ala Ile Gly Lys His Ala Leu Leu Ser Ser 245 250 255 Thr Leu Pro Ser Leu Phe Met Thr Ser Thr Ala Ser Pro Val Met Pro
260 265 270

Thr Asp Ala Tyr His Pro Ile Ile Thr Asn Leu Thr Glu Glu Arg Lys
275
280
285

Thr Phe Gln Ser Pro Gly Val Ile Leu Ser Tyr Leu Gln Asn Val Ser
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Leu Ser Leu Pro Ser Lys Ser Leu Ser Glu Gln Thr Ala Leu Asn Leu 305 310 315 320

Thr Lys Thr Phe Leu Lys Ala Val Gly Glu Ile Leu Leu Leu Pro Gly
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Trp Ile Ala Leu Ser Glu Asp Ser Ala Val Val Leu Ser Leu Ile Asp
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Thr Ile Asp Thr Val Met Gly His Val Ser Ser Asn Leu His Gly Ser
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Val Ala Lys Ile Leu Pro Lys Thr Val Asn Ser Ser His Tyr Arg Phe

Pro Ala His Gly Gln Ser Phe Ile Gln Ile Pro His Glu Ala Phe His Arg His Ala Trp Ser Thr Val Val Gly Leu Leu Tyr His Ser Met His Tyr Tyr Leu Asn Asn Ile Trp Pro Ala His Thr Lys Ile Ala Glu Ala Met His His Gln Asp Cys Leu Leu Phe Ala Thr Ser His Leu Ile Ser Leu Glu Val Ser Pro Pro Pro Thr Leu Ser Gln Asn Leu Ser Gly Ser Pro Leu Ile Thr Val His Leu Lys His Arg Leu Thr Arg Lys Gln His Ser Glu Ala Thr Asn Ser Ser Asn Arg Val Phe Val Tyr Cys Ala Phe

Leu Asp Phe Ser Ser Gly Glu Gly Val Trp Ser Asn His Gly Cys Ala

Leu Thr Arg Gly Asn Leu Thr Tyr Ser Val Cys Arg Cys Thr His Leu 530 535 540

Thr Asn Phe Ala Ile Leu Met Gln Val Val Pro Leu Glu Leu Ala Arg 545 550 555 560

Gly His Gln Val Ala Leu Ser Ser Ile Ser Tyr Val Gly Cys Ser Leu 565 570 575

Ser Val Leu Cys Leu Val Ala Thr Leu Val Thr Phe Ala Val Leu Ser 580 585 590

Ser Val Ser Thr Ile Arg Asn Gln Arg Tyr His Ile His Ala Asn Leu 595 600 605

Ser Phe Ala Val Leu Val Ala Gln Val Leu Leu Leu Ile Ser Phe Arg 610 615 620

Leu Glu Pro Gly Thr Thr Pro Cys Gln Val Met Ala Val Leu Leu His 625 630 635 640

Tyr Phe Phe Leu Ser Ala Phe Ala Trp Met Leu Val Glu Gly Leu His
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Leu Tyr Ser Met Val Ile Lys Val Phe Gly Ser Glu Asp Ser Lys His
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Arg Tyr Tyr Gly Met Gly Trp Gly Phe Pro Leu Leu Ile Cys Ile
675 680 685

Ile Ser Leu Ser Phe Ala Met Asp Ser Tyr Gly Thr Ser Asn Asn Cys
690 695 700

Trp Leu Ser Leu Ala Ser Gly Ala Ile Trp Ala Phe Val Ala Pro Ala 705 710 715 720

Leu Phe Val Ile Val Val Asn Ile Gly Ile Leu Ile Ala Val Thr Arg
725 730 735

Val Ile Ser Gln Ile Ser Ala Asp Asn Tyr Lys Ile His Gly Asp Pro
740 745 750

Ser Ala Phe Lys Leu Thr Ala Lys Ala Val Ala Val Leu Leu Pro Ile 755 760 765

Leu Gly Thr Ser Trp Val Phe Gly Val Leu Ala Val Asn Gly Cys Ala
770 775 780

Val Val Phe Gln Tyr Met Phe Ala Thr Leu Asn Ser Leu Gln Gly Leu
785 790 795 800

Phe Ile Phe Leu Phe His Cys Leu Leu Asn Ser Glu Val Arg Ala Ala

835

845

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840

Pro Gly Met Ala Ser Thr Lys Leu Ser Pro Trp Asp Lys Ser Ser His
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Ser Ala His Arg Val Asp Leu Ser Ala Val 865 870